

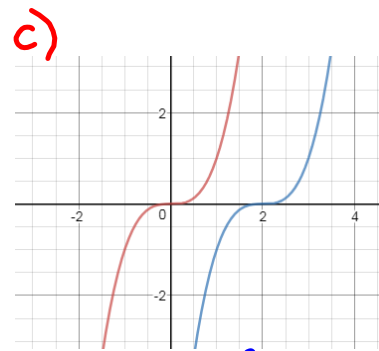
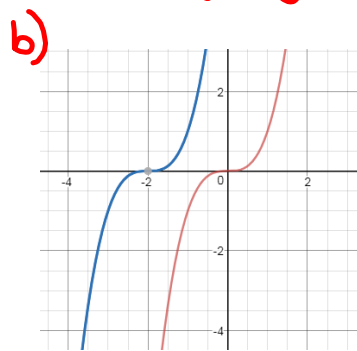
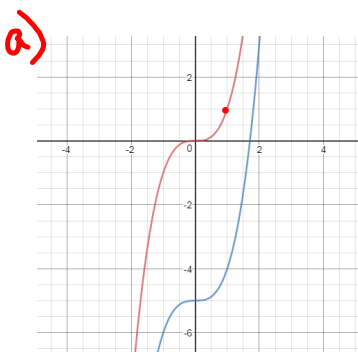
Rigid Trans.

- ↳ size/shape  
unchange
- ↳ vert./horiz  
translations
- ↳ reflections

Non Rigid Trans.

- ↳ distort shape
- ↳ horiz./vert.  
stretch/shrink

Ex 2 Find Equation of Translation (Rigid)



parent graph  $y = x^3$   
 down 5  
 $y = f(x) - 5$   
 $y = x^3 - 5$

left 2  
 $y = f(x+2)$   
 $y = (x+2)^3$

right 2  
 $y = f(x-2)$   
 $y = (x-2)^3$

Reflections

$(x, y) \rightarrow (x, -y)$   
 x-axis

$y = -f(x)$

$(x, y) \rightarrow (-x, y)$   
 y-axis

$y = f(-x)$

Ex 3 Finding Equations for Reflections

$$f(x) = \frac{5x-9}{x^2+3}$$

x-axis

$$y = -f(x)$$

$$= -\left(\frac{5x-9}{x^2+3}\right)$$

$$= \frac{9-5x}{x^2+3}$$

y-axis

$$y = f(-x)$$

$$= \frac{5(-x)-9}{(-x)^2+3}$$

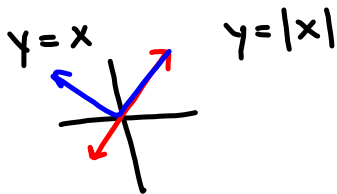
$$= \frac{-5x-9}{x^2+3}$$

$$\begin{matrix} (-x)^3 \\ -x^3 \\ (-x)^2 \\ +x^2 \end{matrix}$$

Graphing Absolute Value Compositions

$$y = f(x)$$

$$y = |f(x)|$$



any thing below the  
x-axis is reflected  
across x-axis

$$y = f(x)$$

$$y = f(|x|)$$

anything to the left of  
y-axis is reflected  
across y-axis